CLAIM

1. A dyed flame resistant fabric, comprising:

a plurality of melamine fibers;

wherein the flame resistant fabric has been dyed through a beam dyeing process in which the fabric has not been mechanically agitated.

2. The fabric of claim 1, further comprising a plurality of non-melamine, inherently flame resistant fibers.

3. The fabric of claim 2, wherein the non-melamine, inherently flame resistant fibers include aramid fibers.

4. The fabric of claim 2, wherein the non-melamine, inherently flame resistant fibers are para-aramid fibers.

5. The fabric of claim 2, wherein the non-melamine, inherently flame resistant fibers have been dyed through the beam dyeing process.

6. The fabric of claim 2, wherein the fabric is approximately 20% to 75% melamine fibers by composition.

7. The fabric of claim 2, wherein the fabric is approximately 30% to 50% melamine fibers by composition.

8. The fabric of claim 2, wherein the fabric is approximately 40% melamine fibers by composition.

9. The fabric of claim 1, wherein the fabric is a woven fabric.

10. The fabric of claim 1, wherein the fabric has a weight of approximately 5 oz/yd^2 to 9 oz/yd^2.

11. The fabric of claim 1, wherein the fabric has a weight of approximately 7.5 oz/yd^2.

12. The fabric of claim 1, wherein the fabric has a trapezoidal tear strength of at least approximately 30 lbf. in the warp direction and at least approximately 25 lbf. in the filling direction.

13. The fabric of claim 1, wherein the fabric has an L* value no greater than approximately 60.

14. The fabric of claim 1, wherein the fabric has an L* value no greater than approximately 35.

15. The fabric of claim 1, wherein the fabric has an L* value no greater than approximately 25.

16. A dyed flame resistant fabric, comprising:

a plurality of dyed melamine fibers; and

a plurality of aramid fibers;

wherein the flame resistant fabric has been dyed through a beam dyeing process in which the fabric has not been mechanically agitated.

17. The fabric of claim 16, wherein the aramid fibers comprise para-aramid fibers.

18. The fabric of claim 16, wherein the aramid fibers have been dyed through the beam dyeing process.

19. The fabric of claim 16, wherein the fabric is approximately 20% to 75% melamine fibers by composition.

20. The fabric of claim 16, wherein the fabric is approximately 30% to 50% melamine fibers by composition.

21. The fabric of claim 16, wherein the fabric is approximately 40% melamine fibers by composition.

22. The fabric of claim 16, wherein the fabric has a composition of approximately 40% melamine fibers and approximately 60% para-aramid fibers.

23. The fabric of claim 16, wherein the fabric is a woven fabric.

24. The fabric of claim 16, wherein the fabric has a weight of approximately 5 oz/yd^2 to 9 oz/yd^2.

25. The fabric of claim 16, wherein the fabric has a weight of approximately 7.5 oz/yd^2.

26. The fabric of claim 16, wherein the fabric has a trapezoidal tear strength of at least approximately 30 lbf. in the warp direction and at least approximately 25 lbf. in the filling direction.

27. The fabric of claim 16, wherein the fabric has an L* value no greater than approximately 60.

28. The fabric of claim 16, wherein the fabric has an L* value no greater than approximately 35.

29. The fabric of claim 16, wherein the fabric has an L* value no greater than approximately 25.

30. A dyed, woven flame resistant fabric suitable for use in the construction of firefighter turnout gear, comprising:

a plurality of dyed melamine fibers; and

a plurality of dyed para-aramid fibers;

wherein the flame resistant fabric has a composition that comprises approximately 30% to 50% melamine fibers and approximately 70% to 50% para-aramid fibers;

wherein the melamine fibers and the para-aramid fibers have been dyed through a beam dyeing process in which the fabric has not been mechanically agitated.

31. The fabric of claim 30, wherein the fabric has a composition of approximately 40% melamine fibers and approximately 60% para-aramid fibers.

32. The fabric of claim 30, wherein the fabric has a weight of approximately 5 oz/yd^2 to 9 oz/yd^2.

33. The fabric of claim 30, wherein the fabric has a weight of approximately 7.5 oz/yd^2.

34. The fabric of claim 30, wherein the fabric has a trapezoidal tear strength of at least approximately 30 lbf. in the warp direction and at least approximately 25 lbf. in the filling direction.

35. The fabric of claim 30, wherein the fabric has an L* value no greater than approximately 60.

36. The fabric of claim 30, wherein the fabric has an L* value no greater than approximately 35.

37. The fabric of claim 30, wherein the fabric has an L* value no greater than approximately 25.

38. A method for dyeing a melamine fabric, comprising the steps of:

wrapping the melamine fabric around a perforated beam of a beam dyeing machine such that several layers of fabric surround the beam;

injecting dyebath into the beam so that the dyebath penetrates the fabric layers; and

circulating the dyebath through the fabric layers until the fabric is dyed to a desired shade.

39. The method of claim 38, wherein the melamine fabric comprises a plurality of melamine fibers and non-melamine, inherently flame resistant fibers.

40. The method of claim 39, wherein the fabric is approximately 20% to 75% melamine fibers by composition.

41. The method of claim 39, wherein the fabric is approximately 30% to 50% melamine fibers by composition.

42. The method of claim 39, wherein the fabric is approximately 40% melamine fibers by composition.

43. The method of claim 38, wherein the step of wrapping the melamine fabric around the perforated beam comprises wrapping approximately 100 to 1250 yards of fabric around the beam.

44. The method of claim 38, wherein the step of wrapping the melamine fabric around the perforated beam comprises wrapping the melamine fabric such that the fabric layers around the beam have a combined thickness of approximately 6 to 25 inches.

45. The method of claim 38, wherein the step of injecting dyebath into the beam comprises injecting a neutral aqueous solution into the beam.

46. The method of claim 45, wherein the dyebath comprises a disperse dye.

47. The method of claim 38, wherein the step of injecting dyebath into the beam comprises injecting a lightly acidic solution into the beam.

48. The method of claim 47, wherein the dyebath comprises a combination of disperse and acid dye.

49. The method of claim 38, wherein the dyebath includes a dye assistant.

50. The method of claim 49, wherein the dye assistant comprises one of aryl ether and benzyl alcohol.

51. The method of claim 38, wherein the fabric has a weight of approximately 5 oz/yd^2 to 9 oz/yd^2.

52. The method of claim 38, wherein, through the dyeing process, the fabric attains an L* value no greater than approximately 60.

53. The method of claim 38, wherein, through the dyeing process, the fabric attains an L* value no greater than approximately 35.

54. The method of claim 38, wherein, through the dyeing process, the fabric attains an L* value no greater than approximately 25.

55. A melamine fabric dyed in accordance with the method of claim 38.

56. A method for dyeing flame resistant fabric, comprising the steps of:

wrapping a flame resistant fabric comprising a plurality of melamine fibers and a plurality of aramid fibers around a perforated beam of a beam dyeing machine such that several layers of fabric surround the beam;

injecting dyebath into the beam so that the dyebath penetrates the fabric layers, the dyebath comprising an aqueous solution containing a disperse dye; and

circulating the dyebath through the fabric layers until the fabric is dyed to a desired shade.

57. The method of claim 56, wherein the fabric is approximately 20% to 75% melamine fibers by composition.

58. The method of claim 56, wherein the fabric is approximately 30% to 50% melamine fibers by composition.

59. The method of claim 56, wherein the fabric is approximately 40% melamine fibers by composition.

60. The method of claim 56, wherein the step of wrapping the fabric around the perforated beam comprises wrapping approximately 100 to 1250 yards of fabric around the beam.

61. The method of claim 56, wherein the step of wrapping the fabric around the perforated beam comprises wrapping the melamine fabric such that the fabric layers around the beam have a combined thickness of approximately 6 to 25 inches.

62. The method of claim 56, wherein the dyebath comprises a combination of disperse and acid dye.

63. The method of claim 56, wherein the dyebath includes a dye assistant.

64. The method of claim 63, wherein the dye assistant comprises one of aryl ether and benzyl alcohol.

65. The method of claim 56, wherein the fabric has a weight of approximately 5 oz/yd^2 to 9 oz/yd^2.

66. The method of claim 56, wherein, through the dyeing process, the fabric attains an L* value no greater than approximately 60.

67. The method of claim 56, wherein, through the dyeing process, the fabric attains an L* value no greater than approximately 35.

68. The method of claim 56, wherein, through the dyeing process, the fabric attains an L* value no greater than approximately 25.

69. A melamine fabric dyed in accordance with the method of claim 56.